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The Development of Worksheets Students Based I-Sets (Islamic, Science, Enviroment, Technology, Society) Skills to Train Students Think Critically

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ABSTRACT

Skill think critically students should high to encourage students because of eliciting an ideas or thought about the problems education world new stuff. Skill and in fact think critically is still low, students this is device used not education can help in improving think critically students ability skill.The research of matter managed a study worksheets students development based i-sets to train students skill think critically high school biology class x-rays on learning.The kind of research used is research and development (R&D) referring to borg and gall .The 7 stages of used is Research and Information collecting, Planning, Develop preliminary form of product, Preliminary field testing , Main product revision , Main field testing , and Operational product revision , the research was done in sman 1 sungkai north class X mia 2. The result of studies do show (1) media experts assessment of 84,37 % with the criteria is very worthy, (2) judgment linguist by 87,49 % with the criteria is very worthy, (3) the assessment of the matter as much as 80,28 % with the criteria is very worthy. (4) response educator biology expressed very worthy of the percentage of 89,90 %.(5) response students class x mia 2 on the criteria is perfectly feasible with the percentage of 92,22 %.So that the teaching material worksheets students based i-sets fit for use as the teaching material in the process of learning biology.

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INTRODUCTION

Education is an effort to prepare a human being through guidance, teaching, and training activities that are expected to be useful for his role in the future (Agustiana et al., 2018; Septina et al., 2018). The success or failure of an educational process really depends on the role of the teacher and the media used in the learning process (Budiarti

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& Haryanto, 2016). The choice of learning media needs to be considered, so that it can support and develop various learning interactions and learning activities in the classroom (Komarudin et al., 2020; Pakpahan et al., 2020; Suryani, 2016).

Learning media are everything that can be used to stimulate students' thoughts, feelings, attention and abilities or skills so that they can encourage the learning process (Ekayani, 2017; Sirait et al., 2020; Zuhriyah, 2018). The presence of learning media is very important because it can help teachers describe real learning concepts in the classroom (Susilo, 2020). The use of learning media summarized in learning media in the form of student worksheets (worksheet) can help students understand the material being studied and activate students in learning (Komarudin & Permana, 2019; Nurhidayah et al., 2014; Rizkiah et al., 2018).

worksheet is a learning media that contains guidelines for students to carry out activities in a structured manner, so that students are active and directly involved in the learning process in developing their abilities and thought processes (Rahmi et al., 2014). So to help this process, it is necessary to have worksheets that can assist in the learning process by developing their thinking process using a learning approach, namely the Islamic, science, environment, technology and society (I-SETS) approach.

The I-SETS learning approach is a development of the SETS learning approach which is associated with Islamic values contained in the Qur'an and Hadith (Munazilah & Yulianto, 2021; Rahmaniati & Supramono, 2015; Wahyuni et al., 2017) . In choosing a learning approach, consideration must be given. This can be seen from the material used in the teaching and learning process, the facilities and infrastructure available in schools and the abilities and skills of students. This is in accordance with the goal of national education, namely to cultivate thinking skills, one of which is critical thinking skills. Critical thinking is a person's ability to think reflectively and have reasons for doing something he believes in (Agnafia, 2019). Critical thinking is a higher-order thinking skill and has been known to play a role in moral development, social development, mental development, cognitive development, and scientific development (Zubaidah, 2010). The ability to think critically is one of the important aspects that students really need in the learning process (Hartini, 2017; Mahmuzah, 2015).

Although a comprehensive study on worksheet has been carried out, efforts to systematically develop I-SETS-based worksheet are still lacking. Several reviews have been carried out in the context of SET education in general (Azizah & Astuti, 2020; Munazilah & Yulianto, 2021; Shinta et al., 2021; Syarifah & Astuti, 2019; Wahyuni et al., 2017). In addition, several studies on the development of worksheets have also been carried out by Pranowo et al. (2021), who succeeded in developing a valid SETS-Based Worksheet for Reaction Rate Materials based on aspects of the feasibility of content, language, presentation, graphics, and aspects of the SETS approach. In addition, Rolin et al. (2017), succeeded in developing SETS-based worksheets to provide understanding and knowledge to students about environmental problems. This means that there has never been a research that has developed SETS-based worksheets aimed at improving students' thinking skills, especially in biology,

Based on the explanation that has been stated, the researcher is interested in developing worksheet research based on I-SETS with the objectives of: (1) compiling I-SETS-based biology teaching materials for

students that are used to practice critical thinking skills; (2) to determine the feasibility of I-SETS-based worksheets on mushroom material based on the results of the validation of material, media, language experts, as well as teacher and student responses.

METHOD

This research and development uses the Borg & Gall (1983) research model adopted by Sugiyono (2015b) which consists of 10 steps which can be seen in Figure 1. In this study, the steps for developing I-SETS-Based worksheet were simplified into seven stages (Akbar & Komarudin, 2018; Puspita, 2019). The limitation of the development stage in this study was carried out because the purpose of this study was to determine the feasibility and attractiveness of the worksheet developed by considering the limitations of time, energy and costs of the researchers, so the study only used 7 stages of development, namely (1) Research and Information collecting; (2) Planning; (3) Development of the preliminary from product; (4) Preliminary field testing; (5) Main product revision; (6) Main field test; (7) Operational product revision.

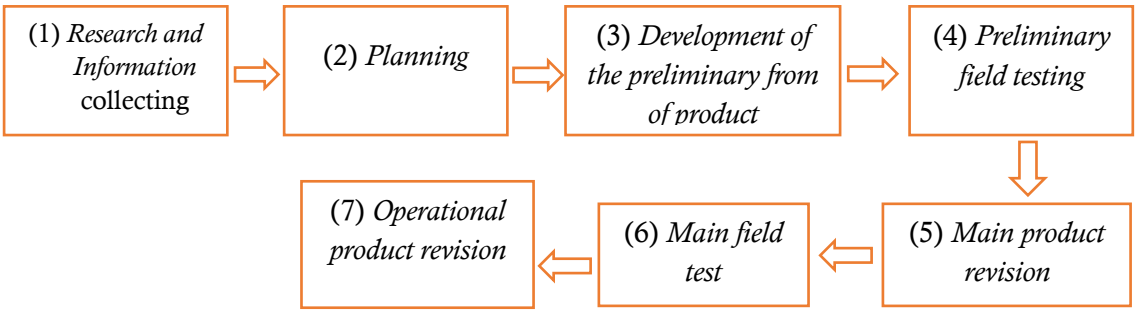

Figure 1. Steps for using Research and Development (Borg & Gall, 1983; Mahfud & Fahrizqi, 2020; Puspita, 2019; Sugiyono, 2015a)

Determination of the sample using purposive sampling technique which is a technique to obtain research samples with consideration of everything so that later the data obtained can be more representative (Sanjaya, 2013). Data collection techniques used by researchers using methods including needs questionnaires, validation questionnaires carried out by several experts including media, language experts, and teacher and student responses and questionnaires, documentation, and interviews.

Data analysis techniques in this study used qualitative data analysis techniques and quantitative data analysis. Qualitative analysis was used in needs questionnaires and interviews by presenting several appropriate questions without calculating numbers. While quantitative analysis is used in the validation questionnaire as well as teacher and student responses which can be processed by presenting the percentage used in the Likert scale as described by Table 1(Riduwan, 2009).

Table 1. Likert Scale

No	Quantitative analysis	Statement	
		Positive	Negative
1	Strongly Agree	4	1
2	Agree	3	2
3	Don't Agree	2	3
4	Strongly Disagree	1	4

The percentage formula used in this study is as follows.

$$P_s = \frac{S}{N} \text{ x } 100\%$$

Dimana:

P_s : Score Persentage

S : Score obtained

N : Maximum score

(Winarni, 2011).

Then the presentation of the feasibility obtained is then interpreted into the eligibility category in Table 2.

Table 2. Likert Scale

Average score	Category
0% - 25%	Not feasible
26% - 50%	Not worth it
51% - 75%	Worthy
76% - 100%	Very worth it

The development of I-SETS-based worksheet to train critical thinking skills can be said to be theoretically feasible if the percentage of eligibility is more than 51% (Riduwan, 2009).

RESULT & DISCUSSION

The results of the research that has been carried out are in the form of I-SETS-Based worksheet products to train critical thinking skills. After the preparation of the product is complete, the next step is to compose an instrument rubik sourced from the learning instrument book (Akbar, 2016), before being used the questionnaire was validated by a lecturer from the Department of Biology Education, Faculty of Tarbiyah and UIN Raden Intan Lampung Education. After the instrument validation stage is complete, then validation is carried out by media, language and material experts on the I-SETS-based worksheet, the assessment is carried out by 2 validators for each expert.

The results of validation by 2 validator lecturers in each expert provide an assessment and input. Media experts before conducting the assessment gave input, namely the Rubik's image on the worksheet must be enlarged, after making improvements to the I-SETS-based worksheet, Getting a value that is quite satisfactory with an average total percentage of 83.92% in the very feasible category, followed by an assessment and input from linguists, before carrying out the assessment, linguists provide input, namely a description of the mushroom formulation that must be related to the I-SETS although briefly, after improvements, the media expert gave an assessment with an average total percentage value of 87.49% in the very feasible category. , followed by the assessment and input of material experts, before conducting the assessment material experts provide input, namely the I-SETS-based worksheet is not good at using a concept map, it is recommended that it be replaced with material construction that connects the material with I-SETS, after making improvements the material expert provides an assessment of worksheet based on I-SETS with a total average percentage value of 83.92% in the very feasible category. Judging from the aspect of the entire assessment that has been given by the validator to the I-SETS-based worksheet, it is very feasible to use.

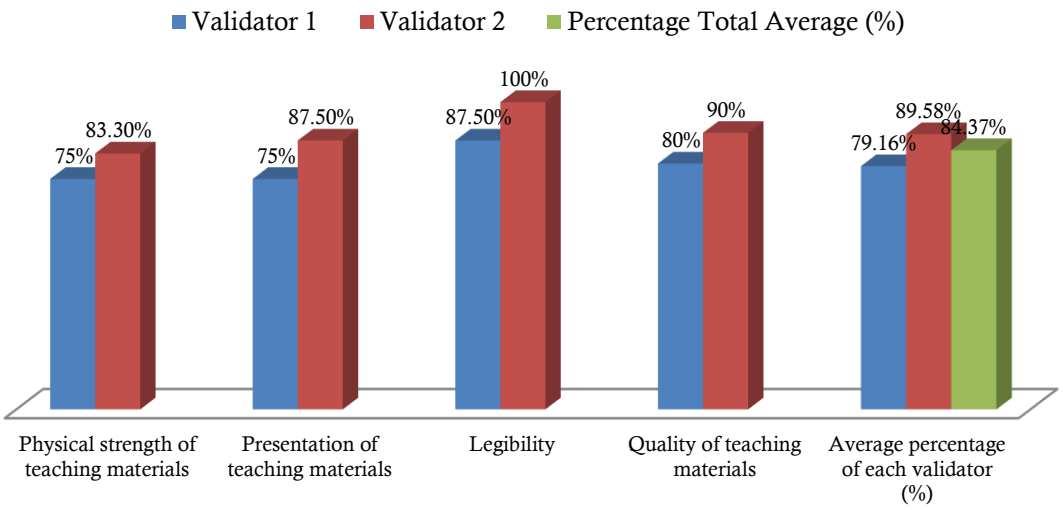

Figure 3. Assessment analysis based on media experts

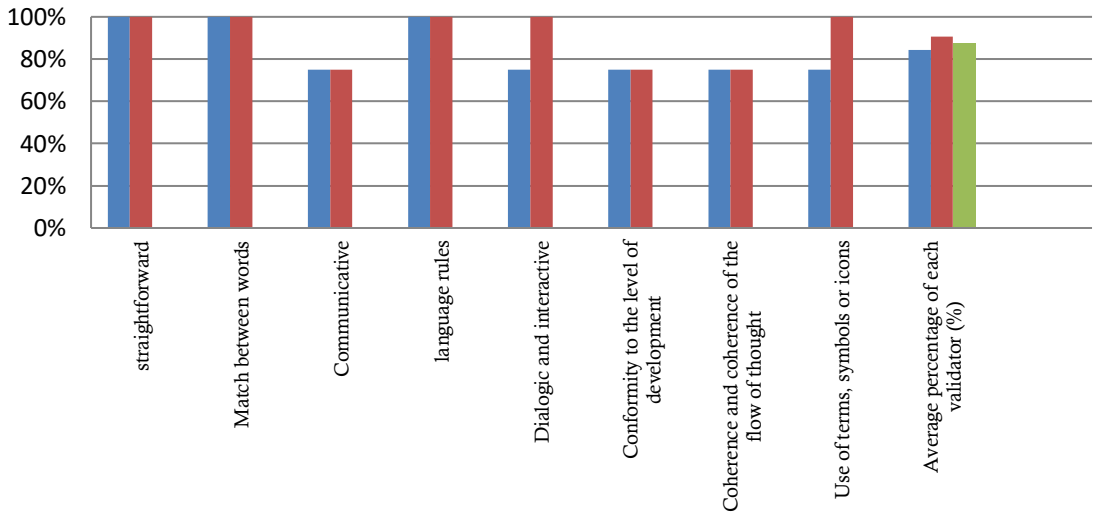

Figure 4. Analysis by Linguist

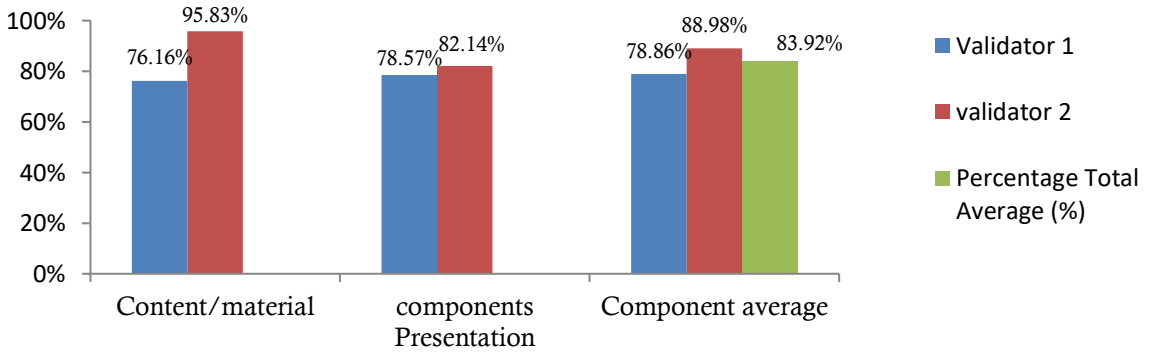

Figure 5. Analysis by Materials expert

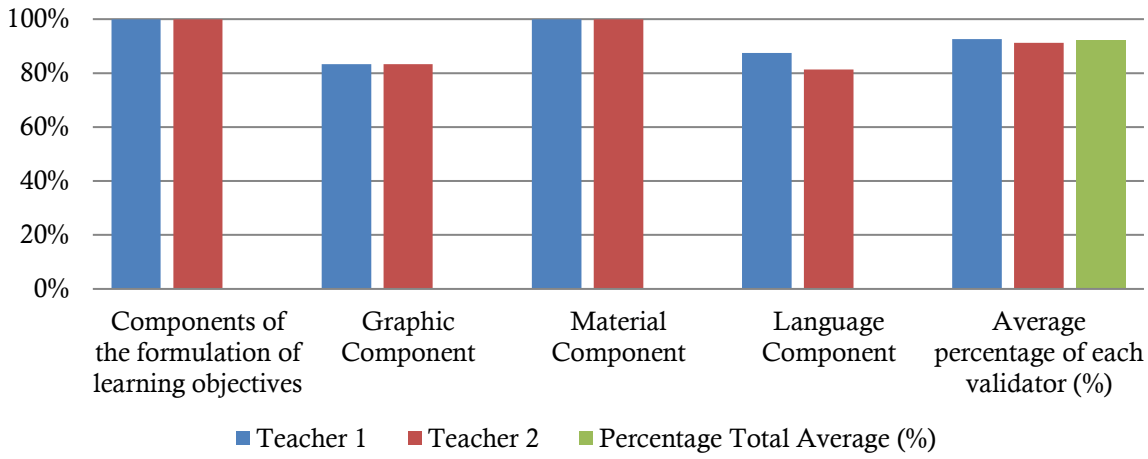

Figure 6. Teacher response analysis

Stage The results of the assessment of 2 biology teacher responses to the product developed were categorized as very feasible with an average rating of 91.92%. Furthermore, preliminary field testing (limited scale testing) was carried out to 10 students, revised limited scale trials, Main field test trials (broad scale tests) to 30 students and revised wide scale tests (Table 3).

Table 3. Tabulation of Class X Students' Responses to worksheet

Rating indicators	Average percentage %	Criteria
10 student	81%	Very worth it
30 student	92,22%	Very worth it

Based on the results of student responses to the worksheet which was developed in a limited-scale trial, it increased by 11%. This shows that the developed worksheet attracts students' interest, this is because the worksheet teaching materials developed use language that is easy for students to understand, the material presented is not boring because the material is accompanied by pictures and the steps in solving problems in the worksheet are clear and easy to understand. understood by students.

The feasibility of the worksheet is determined based on the results of the validation assessment carried out by media, language, material experts, as well as the responses of teachers and students who show that the criteria are very feasible to use with the criteria if the percentage of eligibility is 51% (Riduwan, 2009). I-SETS-based worksheet is feasible to use to support the learning process, through questions presented in the I-SETS approach, it is hoped that after students use I-SETS-based worksheet they are able to encourage students' mindsets towards environmental development (Wahyuni et al., 2017), technology, and can be applied in the daily environment by linking Islamic values.

The results of this study complement the results of research conducted by Setiadi et al., 2020) which stated that the SETS-based worksheet developed was declared to meet the feasibility and practicality aspects with a score percentage of 86.73% (very feasible) and 94.62% (very feasible). Easy to understand). In addition, the results of this study are also the same as the results of research conducted by (Apriliani, 2017) which states that the SETS-based worksheet developed meets the aspects of

feasibility and practicality with a score percentage of 77.5% (very feasible) and 95.3% (respectively). Easy to understand). The results of this study are also strengthened by the results of research conducted by Hayati et al. (2019) which states that the SETS-based worksheet is feasible to be used as a reference to improve science process skills.

CONCLUSION

The conclusion of this assessment is that a teaching material product has been successfully developed in the form of a worksheet Based on the I-SETS Link (https://bit.ly/worksheetyayan) to Train Students' Critical Thinking Skills on Mushroom Materials using the Borg and Gall development model, with a feasibility score in very feasible category based on the assessment of media, language, and material experts and the responses of teachers and students with eligibility percentages of 84.37%, 87.49%, 80.28%, 89.90%, and 92.22%, respectively. So that the I-SETS-based worksheet teaching materials are appropriate to be used as teaching materials in the teaching and learning process activities in biology learning. Considering that this research was only developed up to the stage of revising the results of a broad field test, further research is needed to test the effectiveness of the I-SETS-based worksheet to train critical thinking skills developed, so that this worksheet can be more perfect so that product distribution can be carried out.

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